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irregular brownish bands, closely resembling the branched fronds of the Sargassum weed. Along the edges of these darker bands, on the bands themselves, and also to a lesser extent upon the rest of the body, are little white specks of various sizes, on an average about that of a pin's head. On the belly, around the mouth, and on the dorsal spines, are numerous leaf-like cutaneous filaments. Mr. Ives stated that after careful consideration, he had come to the conclusion that the color markings of the fish, and the cutaneous filaments, had been developed in mimicry of the *Spirorbis*-covered Sargassum weed. Professor Benjamin Sharp who spent last winter in the West Indies, had informed Mr. Ives that on the Sargassum weed, of which he saw large quantities, were invariably scattered great numbers of *Spirorbis* shells. Professor Moseley in "Notes by a Naturalist on the 'Challenger'" (p. 567) speaks of the resemblance in coloration of the forms inhabiting the Sargasso Sea, to the Sargassum weed. He attributes the white spots of *Pterophryne histrio*, and also of some shrimps and crabs to mimicry of the patches of *Membranipora* that encrust the Sargassum weed. The white spots upon *Pterophryne histrio*, however, are much smaller than the patches of *Membranipora*, and are also much more striking to the eye. This latter fact appears to be due to the delicate fenestrated character of this Bryozoan. The patches of *Membranipora*, also do not occur in the same abundance upon the Sargassum weed as do the *Spirorbis* shells. Professor Moseley probably confounded the numerous *Spirorbis* shells with patches of *Membranipora*. As far back as 1757, Peter Osbeck describing this fish which he had met with in the Sargassum weed of the Atlantic Ocean while on a journey to the East Indies, said, with reference to the cutaneous filaments, "probably Providence has clothed it in this leaf-like manner, in order that the predaceous fishes might confound it with the sea-weed, and therefore not exterminate it."<sup>1</sup>

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NOVEMBER 12.

Mr. CHARLES P. PEROT in the chair.

Twenty-eight persons present.

*Notes on Crepidula*.—Mr. JOHN FORD exhibited fine suites of *Crepidula*, including *C. conveza*, Say, *C. plana*, Say, *C. fornicata*, Linn. and *C. glauca*, Say, with the view of proving that *C. glauca*, said by some writers to be the young of *C. fornicata*, is not only distinct from that species but from all others of the genus.

Special reference to the matter had been suggested by the omission of the name in Dr. Dall's recently published "Catalogue of the Shell-bearing Marine Mollusks of the South Eastern Coast of the

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<sup>1</sup> Peter Osbeck, Reise nach Ostindien und China. Aus dem schwedischen übersetzt von J. G. Georgi Rostock, 1765, p. 400.

United States," the figure given therein having been taken from Dr. Gould's *Invertebrata of Massachusetts*, and the name *C. glauca* replaced by that of *C. fornicata*.

The speaker was not unaware of the fact that Mr. Tryon at one time entertained a similar opinion regarding the affinity of the two species, but a more recent examination of a large series of shells convinced him that the two forms were specifically distinct. While it is true that the shells of *C. glauca* are in a measure allied to those of *C. fornicata* it is quite as certain that the one can be distinguished from the other by at least three characters, either of which is fixed and prominent enough to constitute a species.

In *C. fornicata* the following permanent characters may readily be observed :—

1st. The prominent apex, which is nearly always curved laterally and joined by a shelly growth to the shoulder of the shell.

2nd. The saucer-like depression of the arch which is the same in all specimens, whether young or old.

3d. The peculiarly bowed or ogee form of the free edge of the arch.

4th. The ever-present notch at the junction of the arch with the body of the shell.

5th. The pear-shaped outlines of the shells.

A careful examination of the shells of *C. glauca* will show that all of these characters are absent, and that others quite as positive take their place.

The apex of *C. glauca* is not only less prominent but much less inclined to curve laterally. It is also more acutely pointed, usually shining and horn-like in appearance, and the tip is always free from contact with the body of the shell.

The free edge of the arch is also straighter than that of *C. fornicata*, while, in place of the notch, which is so marked a feature in the last-named species, there is a slight forward growth of the arch-plate along and against the wall of the shell. But the most important character, perhaps, is the elevation of the arch. This feature is a constant one and sufficient of itself to separate the species from *C. fornicata*, the arch of which is always depressed. It may also be said that the two species are wider apart at maturity than at any other stage of growth—although we are told that *C. glauca* just at this period merges into *C. fornicata*. Other differences including that of color and the quoit-like form of the shells, might be indicated, but those already referred to will doubtless satisfy the student that the two species are essentially distinct.

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NOVEMBER 19.

The President, Dr. JOSEPH LEIDY, in the chair.

Twenty-three persons present.

The following communications were made in connection with the proceedings of the Biological and Microscopical Section :

*Activity in Donax.*—Dr. BENJAMIN SHARP described an interesting case of activity in a bivalve studied by him on the beach of the island of Nevis, B. W. I. Noticing some active little animals in the swash of the breakers, he took them at first sight to be a form of crustacea. He had some difficulty in catching them and to his surprise found them to be a species of *Donax*. When they wished to flee from a real or supposed cause of danger, they protruded more than half their length from the sand, as the breakers receded. Those that were not carried into the deeper water on becoming exposed to the air by the retreating waves, buried themselves with astonishing rapidity in the sand and waited for the swash to again flow over them, not protruding themselves until the current returned. The method of getting up the beach was just the reverse of the former action; that is, they protruded after the receding water had left them dry, so that the “up-shoot” carried them up the slope. As soon as the water began to recede they anchored themselves and disappeared into the sand rapidly, waiting thus until the approaching wave came to help them again, and so on. The power of appreciating the shock caused by the breaker on the sand, and also the approach of footsteps, the power of recognizing quickly the direction of the current and how to utilize it in avoiding danger, and the ability to place themselves in a more congenial position on the beach, were indicated by these actions. Did they depend on the sense of hearing? These bivalves exist in enormous numbers on the beach, which actually bristled with them when they protruded. They were of all sizes, from exceedingly minute specimens to those a half an inch or more in length.

*Change of habit causing change of structure.*—Dr. BENJAMIN SHARP also made some remarks on the Flicker or Ground Woodpecker, *Colaptes auratus*, his attention having been called to the subject by an amateur ornithologist, Mr. Long, now of Nantucket.

It is well-known to ornithologists that the flicker has departed from the typical habits of the woodpecker in a number of ways. It feeds on insects, especially ants, taken from the ground in preference to the laborious method of excavating them from under the bark of trees or from decaying wood, and in making its nest it selects a hollow tree, rather than make the effort of boring out a new cavity in the solid wood. The popular name, “Ground Woodpecker,” indicates, to a certain extent, the divergence from the woodpecker’s habits.

When the bird is examined it will be found that the bill is weaker than is usual in this group of birds, and that it is curved more or less in different specimens, showing a considerable amount of variation. If this curve increases it will soon become impossible for the bird to use it as a drill except in soft substances. The feet in this